

* For Examiner's Reference

What is claimed is:

1. A fluid control servo-solenoid valve with self-contained actuating fluid, in particular, for sanitary installations, wherein the fluid control servo-solenoid valve with self-contained actuating fluid includes a valve housing having therein a valve inlet (2) and a valve outlet (3) isolatable from one another in a sealed manner via the seating of a valve flange (6.1) in a valve closing position on a valve seat (13.6), whereby the valve inlet (2) and the valve outlet (3) are located on two opposed sides of the valve housing, a displaceable differential piston (5), disposed in the valve housing, that supports thereon the valve flange (6.1), wherein, on one side of the differential piston (5), there is a pressure volume (8) communicated with the valve inlet (2) with the pressure volume (8) being selectively communicable via the valve seat (13.6) with the valve outlet (3) while, on the other side of the differential piston (5), there is a control volume (9) that is selectively communicable with the valve outlet (3) via a relief bore that is closable by means of a closure element associated with the plunger of an electro-magnetic pilot valve (13) with the control volume (9) being communicated via a control channel (10) with the pressure volume (8) and the pressure volume 8 being sealed off relative to the control volume (9) via a seal along the edge regions of the differential piston (5), wherein the servo-solenoid valve further comprises:

a) the housing 1-4 being configured as a small, elongate

body having a pair of lengthwise sides and a pair of widthwise sides each relatively shorter than either of the lengthwise sides, whereby the valve inlet (2) and the valve outlet (3) are each disposed on a respective one of the widthwise outer sides of the housing and the inlet/outlet flow direction E-A extends parallel to the housing longitudinal axis L;

b) the differential piston (5) being disposed in the housing (1-4) such that its movement is perpendicular to the housing longitudinal axis L;

c) the pilot valve (13) being dismountably secured on the respective widthwise outer side (1.3) of the housing on which the valve outlet (3) is located; and

d) the relief bore being configured as a pilot valve seat (13.6), closable by a closure element (13.5), and located between the valve chamber (13.7) of the pilot valve (13) and an outflow channel (14) communicated with the valve outlet (3), whereby the valve chamber (13.7) is communicated via a discharge channel (12) with the control volume (9).

2. A fluid control servo-solenoid valve according to claim 1, wherein the housing is configured as a two-piece component having a base body (1) supporting the valve inlet (2) and the valve outlet (3), and

including on one side an opening that provides access into the housing, the opening being covered by a housing cover (4) extending in the direction of the housing longitudinal axis L over a portion of the longitudinal extent of the housing.

5 3. A fluid control servo-solenoid valve according to claim 2, wherein the differential piston (5) as well as a hood (11) covering the control volume (9) are each components of a unitary component deployable into the housing interior via the opening in the housing.

10 4. A fluid control servo-solenoid valve according to claim 1, wherein the housing (1-4) is configured as a cylinder with substantially planar, small widthwise end surfaces on its outer side.

15 5. A fluid control servo-solenoid valve according to claim 1, wherein at least one of the valve inlet (2) and the valve outlet (3) is provided with a respective pipe or hose communication element (16, 16', 18).

20 6. A fluid control servo-solenoid valve according to claim 1, wherein the respective one of the widthwise sides (1.2) of the valve on which the valve inlet (2) is located includes a threaded support (1.4) through which the valve inlet extends, the threaded support (1.4) serving for threaded securement of the valve in a valve receipt location.

7. A fluid control servo-solenoid valve with self-contained actuating fluid, in particular, for sanitary installations, wherein the fluid control servo-solenoid valve with self-contained actuating fluid includes

a valve housing having therein a valve inlet (2) and a valve outlet (3) isolatable from one another in a sealed manner via the seating of a valve flange (6.1) in a valve closing position on a valve seat (13.6) whereby the valve inlet (2) and the valve outlet (3) are located on two opposed sides of the valve housing, a displaceable differential piston (5), disposed in the valve housing, that supports thereon the valve flange (6.1), wherein, on one side of the differential piston (5), there is a pressure volume 8 communicated with the valve inlet (2) with the pressure volume 8 being selectively communicable via the valve seat (13.6) with the valve outlet (3) while, on the other side of the differential piston (5), there is a control volume 9 that is selectively communicable with the valve outlet (3) via a relief bore that is closable by means of a closure element associated with the plunger of an electro-magnetic pilot valve (13), with the control volume 9 being communicated via a control channel (10) with the pressure volume (8) and the pressure volume (8) being sealed off relative to the control volume (9) via a seal along the edge regions of the differential piston (5), wherein the servo-solenoid valve further comprises:

- a) the housing (1-4) having a housing longitudinal axis L and being configured with the valve inlet (2) and the valve outlet (3) disposed on respective opposite sides such that the inlet/outlet flow direction E-A extends parallel to the housing longitudinal axis L;

- b) the differential piston 5 being disposed in the housing 1-4 such that its movement is not parallel to the housing longitudinal axis L;
- c) the pilot valve 13 being secured on the respective outer side 1.3 of the housing on which the valve outlet 3 is located; and
- d) the relief bore being configured as a pilot valve seat 13.6, closable by a closure element 13.5, and located between the valve chamber 13.7 of the pilot valve 13 and an outflow channel 14 communicated with the valve outlet 3, whereby the valve chamber 13.7 is communicated via a discharge channel 12 with the control volume 9.

8. A fluid control servo-solenoid valve according to claim 7, wherein the housing 1-4 is configured as a small, elongate body having a pair of lengthwise sides and a pair of widthwise sides each relatively shorter than either of the lengthwise sides, whereby the valve inlet 2 and the valve outlet 3 are each disposed on a respective one of the widthwise outer sides of the housing.

9. A fluid control servo-solenoid valve according to claim 7, wherein the differential piston 5 is disposed in the housing 1-4 such that its movement is perpendicular to the housing longitudinal axis L.

10. A fluid control servo-solenoid valve according to claim 7,

wherein the pilot valve (13) is dismountably secured on the respective widthwise outer side (1.3) of the housing on which the valve outlet (3) is located.